DOCUMENT RESUME

ED 208 287 CG 015 457

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TITLE Proportion of Women as a Variable in the Conceptions of Selected Occupations.
PUB DATE Mar 81
NOTE 22p.; Paper presented at the Annual Convention of the Association for Women in Psychology (8th, Boston, MA, March 5-8, 1981). Best copy available.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Ability; *Attribution Theory; *Employed Women; Employment Level; *Occupations; Sex Bias; *Sex Differences; *Social Attitudes; Social Cognition; *Socioeconomic Status

ABSTRACT

Occupations with higher proportions of women are often thought to be less difficult jobs. The importance of specific socioeconomic factors, e.g., gender, race, age, income, and prestige, is assessed through judgment of the ability, luck, effort, and task difficulty necessary for each occupation. To examine conceptions of various occupations within the framework of attribution theory, 63 undergraduates completed a questionnaire which requested judgments of 12 different occupations. Respondents rated each occupation according to the ability, effort, and, luck judged necessary for a successful career, and the difficulty of each occupation; the percentage of women in each occupation was also estimated. A repeated measures analysis of variance was used to compare the fit provided by five possible models, each including a main effect for one of the independent variables: gender, race, age, income level, or occupational prestige. Results reflected a basic tendency to associate higher socioeconomic status with more positive factors--in this case, greater ability, effort, luck, and task difficulty. Differences based on greater proportions of women paralleled those for occupations with lower average incomes, higher proportions of non-whites, and lower prestige ratings. Occupations with the highest proportion of whites and highest incomes were judged to have the highest percentage of women. However, the 1970 U.S. Census indicated a higher proportion of women in occupations with lower proportions of whites and lower incomes. (Author/JAC)

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PROPORTION OF WOMEN AS A VARIABLE IN THE CONCEPTIONS OF SELECTED OCCUPATIONS

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CG 015457

Paper presented at the Annual Meeting of the Association of Women in Psychology, Boston, MA, March 1981.

Proportion of women as a variable in the conceptions of selected occupations

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In this study conceptions of various occupations are examined within the framework of attribution theory. The importance of specific socioeconomic factors (gender, race, age, income, and occupational prestige) is assessed through judgment of the ability, luck, effort, and task difficulty necessary for each occupation. Judgments of the percentage of women in each occupation are also considered.

Occupation and gender are two variables which evidence significant differences in judgments of other people. Although any occupation includes people with many different characteristics, there is a relatively clear consensus on the conceptions of particular occupations. This consensus is reflected in distinct personalities' being attributed to individuals in different occupations (Stagner, 1970; Haire, 1955; Grunes, 1956; Triandis, 1959; McCabe, 1960; Beardslee & O'Dowd, 1961; Holland, 1959, 1963, 1966; Hollander & Parker, 1969). It is also reflected in the prestige attached to members of certain occupations. Prestige ratings appear consistent over time and across cultures (Hodge, Trauman, & Rossi, 1966). These varying prestige ratings are associated with characteristics such as competence, truthfulness, altruism, importance to society, social skill, strength, and appropriateness for different sexes (McLaughlin, 1978; Panek, Rush, & Greenwalt, 1977; Ryckman & Sherman, 1974).

[1]Paper presented at the meetings of The Association of Women in Psychology, Boston, March 1981.

Differences based on a stimulus person's gender have been well documented. They appear when individuals are judged (Anastasi, 1965; Broverman, Broverman, Clarkson, Rosenkrantz, & Vogel, 1970; Feather & Simon, 1975; Goldberg, 1968; Horner, 1972; McKee & Sheriffs, 1957; Rosenkrantz, Vogel, Bee, Broverman, & Broverman, 1968; Taynor & Deaux, 1973). These differences are reflected in personality characteristics' such as passivity and dependence being seen as more common in females than males, lower probability of women's succeeding at achievement-related activities, and differing causes or consequences of a person's success.

Gender differences do not only appear when perceptions of specific women are studied. They also appear in judgments of large numbers of women as well as the work done by women. Fidell (1970) found that descriptions of potential faculty members were rated less positively if they described female applicants. Similarly, Pheterson, Kiesler, and Goldberg's (1971) research findings included significantly higher ratings for paintings ascribed to male rather than female painters. Taynor and Deaux (1973) found that men were judged more capable than women even when they performed identically. Such differences are striking since gender is the only way in which the stimulus people and their achievements differed.

Hawkins and Pengrie (1978); O'Bryant, Durrett, & Pennebaker, (1978); Piehl (1976); and Touhey (1974a , 1974b) extended the investigation of differential judgments to work done by women. Individual occupations were studied for differences based on the proportion of women in each occupation. The prestige ratings of individual occupations decreased if the percentage of women in the

occupation was expected to increase (Hawkins & Pengrie, 1978; Piehl, 1976; and Touhey 1974b). Occupations were judged more favorably if the proportion of men was expected to increase (Hawkins & Pengrie, 1978; Touhey, 1974a). Greater proportions of men were also associated with higher income levels, as well as more activity, usefulness, and security (O'Bryant et al, 1978; Touhey, 1974a).

Since this study concerns conceptions of achievement-related variables (that is, success in specific occupations), it is being studied within the framework of the attribution model proposed by Weiner, Frieze, Kukla, Reed, & Rosenbaum (1971). This model concerns judgments of achievement-related events. It is based on the theoretical work of Heider (1958) who described the importance of the attribution process. Attributions are often seen as reflecting qualities which are intrinsic to the observed stimulus, not the product of the perciever's judgment. The model proposed by Weiner and associates (1971) describes this process as it relates to the perception of achievement. It includes four elements: ability, luck, effort, and task difficulty. These four elements have been used to investigate explanations given for success or failure at various tasks. Previous research which studied these four elements has found differences based on gender, occupations, the proportion of women who normally perform a task, outcome (success or failure), difficulty of these tasks, and the sex-appropriateness of the task (Deaux & Emswiller, 1974; Feldman-Summers and Kiesler, 1974; Feather & Simon, 1975; Taynor & Deaux, 1973).

The aforementioned research was used in formulating the present study, which is concerned with conceptions of individual occupations

as a function of the proportion of women in each occupation. The proportion of women is used as only one of the dimensions in which occupations may vary. The 1970 U. S. Census revealed differences which can be associated with differences in the proportion of women in individual occupations. Most notable is the difference in income and status which appear not only between occupations which differ in the proportion of women, but also within occupations. At all levels women have lower income than men in the same occupation. A greater proportion of women than men are in lower status jobs. These differences exist even for women who have more education than men.

A more complete picture of differences associated with gender was desired. Therefore, the following data were used to describe participants in each of twleve occupations: proportion of women, race, age, income, and occupational prestige.

The variables describing occupation were related to judgments of the qualities necessary for success in each occupation. These qualities (ability, effort, luck, and task difficulty) are those which have been identified as important dimensions of the attribution process used in judging achievement-related events (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971).

Method

Respondents

Sixty-three undergraduates (31 male, 32 female) were respondents in this study. They volunteered from two introductory psychology classes and received academic credit for their participation.

Stimulus materials

A three-part questionnaire was used to collect data. The questionnaire included questions on each of twelve occupations. These occupations were selected from the 1970 U. S. Census Report. These occupations were considered familiar to most undergraduates, and their title did not mention gender. They represented differing proportions of women, racial compositions, ages, income levels, and occupational prestige levels. The first four descriptors were obtained from the 1970 U. S. Census Report. The last descriptor was obtained from Duncan's (1961) socioeconomic rating of occupations. The twelve selected occupations were department store manager, farm laborer, chemist, photographer, shipping and receiving clerk, sociology professor, physician, elevator operator, high school biology teacher, jeweler and watchmaker, pharmacist, and postal clerk.

The first part of the study (Part A) requested information on the four causal variables. Respondents were asked to rate each occupation according to the ability, effort, and luck judged necessary for a successful career in the designated occupation. They were also asked to rate the difficulty of each occupation. All of these ratings were made through 5-point rating scales in which possible responses ranged from very unnecessary to very necessary for the first three scales and from very easy to very difficult for the last scale.

The second part of the questionnaire (Part B) asked the respondents to estimate the percentage of women and men in each occupation. The third part of the questionnaire (Part C) requested estimates of the age distribution of the individuals in each occupation.

Procedure

The questionnaires were administered in one group session which was held in a large classroom. A female experimentor distributed the questionnaires. The questionnaire included written instructions, and the respondents completed the questionnaire individually.

Independent variables

Five independent variables were used: gender (percentage of women); race (percentage of whites); age; income level; and occupational prestige.

Dependent variables

Five dependent variables were used: ability, effort, luck, task difficulty, and percentage of women.

Statistical analysis

A repeated measures analysis of variance was used to compare five possible models which related the independent and dependent variables. Each model included a main effect for one of the five independent variables, the effect of individual respondent differences, and the interaction of the main effect and the individual differences. For each model F statistics were obtained for the main effects, interactions, and overall model. r^2 values were also computed for each overall model.

Results

The five models were compared to see which model provided the best fit for the data. The results are presented in Tables 1 through 5 for each of the dependent variables ability, luck, effort, task difficulty, and percentage of women. Each of the five models

includes one of the sociodemographic variables gender, race, age, income, or occupational prestige. Each model was tested for a main effect for the sociodemographic variable. The F statistics are presented in Tables 1 through 5. The corresponding cell means are presented in Table 6. These main effects were all statistically significant ($p < .0005$). Occupations with higher proportions of women, higher proportions of non-whites, and lower incomes were judged as less difficult jobs which required less ability, luck, and effort than occupations with lower proportions of women. Occupations with older members were judged as requiring less luck and effort than occupations with younger members. The more prestigious the occupation, the more difficult it was judged, and the more necessary were ability and effort for a successful career. Luck was judged most necessary for the moderately prestigious occupations and least necessary for the least prestigious occupations.

Judgments of the percentage of women in the various occupations evidenced statistically significant differences for occupations with different age distributions, racial composition, and income levels. Occupations with younger age distributions were judged as having greater proportions of women. Occupations with the highest incomes and greatest proportions of whites were judged as having the highest percentage of women. Occupations with moderate levels of income and percentage of whites were rated as having the lowest percentage of women.

The comparisons of the overall models, which are based on the overall F statistics, indicated that the model which included age was least able to account for the different judgments of the occupations. This model was statistically significant ($p < .025$)

for the two dependent variables luck and percentage of women only. The other four models, which were based on gender, race, income, or prestige, respectively, were statistically significant for all five dependent measures (ability, luck, effort, task difficulty, and percentage of women).

The model which included gender as an independent variable was statistically significant in accounting for the different judgments of all five dependent measures. The F statistics were 1.49, 2.36, 2.07, 2.28, and 2.42 for the dependent variables ability, luck, effort, task difficulty, and percentage of women. All of these F values were statistically significant ($p<.0001$). However, the three models based on race, income, and prestige evidenced F values with higher or comparable levels of significance.

Comparison of the overall r^2 values indicated that the model which included age provided the worst fit for the data. r^2 values for the model which included gender were .228, .319, .291, and .311 for the dependent variables ability, luck, effort, and task difficulty, respectively. These r^2 values were higher than the corresponding ones for the model which included age. However, they were lower than the corresponding values for the three models which included race, income, and prestige.

The model which included income provided the best fit for the dependent variable percentage of women ($r^2 = .348$). Slightly lower r^2 values were found for the models which included gender, race, and prestige ($r^2 = .324$, .323, .322, respectively). The lowest r^2 value was indicated for the model which included age ($r^2 = .223$).

Discussion

The analyses revealed that the proportion of women was an important independent variable in the judgments of occupations. Occupations with higher proportions of women were judged as less difficult occupations in which ability, effort, and luck were less necessary than in occupations with lower proportions of women. However, analogous differences were found for occupations with lower average incomes, higher proportions of non-whites, and lower prestige ratings. These findings are consistent with those of Hawkins and Pengrie (1978); O'Bryant et al. (1978); Piehl (1976), and Touhey (1974a, 1974b). They reflect a basic tendency to associate higher socioeconomic status with more positive factors -- in this case, more ability, effort, luck, and task difficulty.

The implications of these findings are important. Differences based on greater proportions of women parallel those for occupations with lower average incomes, higher proportions of non-whites, and lower prestige ratings. Women are, in fact, overrepresented in occupations with these characteristics. Therefore, differences ascribed to gender may actually reflect differences in the other characteristics which are associated with traditionally female occupations. The significance of such relationships should not be ignored. Efforts such as providing equal pay for the same work are important in providing fair compensation for women, especially those who are in traditionally male occupations. However, truly equitable economic, political, and social systems would evaluate occupations on the basis of factors such as amount of training and skill required. The proportion of women in an occupation should

not be important in determining such an evaluation. Thus, we should also question the conceptions of traditionally female occupations. We should ask what changes will occur in the conceptions of traditionally male occupations as more women enter these occupations.

The analysis of percentage of women as the dependent variable evidenced significant differences for the independent variables income and proportion of whites. Occupations with the highest proportion of whites and the highest incomes were judged as having the highest percentage of women. The 1970 U. S. Census indicated higher proportion of women in occupations with lower proportions of whites and lower income levels. The obtained results do not only contradict empirical data. They also suggest different factors operating when gender is a dependent, rather than an independent variable.

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Table 1

Summary of different models used to compare the judgments of different occupations: Ability as dependent variable

	Main Effect	Overall Model	
Independent Variable	F	F	r^2
Proportion of women	107.83***	1.49**	.228
Proportion of whites	417.70***	6.03***	.666
Age	11.32**	0.63	.111
Income	195.23***	3.19***	.514
Prestige	196.70***	3.16***	.512

** $p < .01$
*** $p < .0001$

Table 2

Summary of different models used to compare the judgments of different occupations: Luck as dependent variable

Independent variable	Main Effect F	Overall Model F	Overall Model r^2
Proportion of women	17.35***	2.36***	319
Proportion of whites	32.40***	2.43***	.446
Age	6.72**	2.09***	.293
Income	24.57***	2.53***	.456
Prestige	196.70***	3.16***	.512

** $p < .01$

*** $p < .000$

Table 3

Summary of different models used to compare the judgments of different occupations: Effort as dependent variable

Independent Variable	Main Effect	Overall Model	
	F	F	r^2
Proportion of women	108.78***	2.07***	.291
Proportion of whites	93.65***	2.26***	.428
Age	34.70**	1.31*	.206
Income	57.29***	1.73***	.364
Prestige	57.77***	1.77***	.370

*$p < .05$
**$p < .01$
***$p < .0001$

Table 4

Summary of different models used to compare the judgments of different occupations:

Task difficulty as the dependent variable

	Main Effect	Overall Model	
Independent Variable	F	F	r^2
Proportion of women	154.54***	2.28***	.311
Proportion of whites	150.14***	2.67***	.470
Age	8.12**	0.83	.141
Income	109.84***	2.29***	.431
Prestige	117.56***	2.39***	.442

** $p < .01$
*** $p < .0001$

Table 5

Summary of different models used to compare judgments of different occupations: Percentage of women as dependent variable

	Main Effect	Overall Model	
Independent Variable	F	F	r^2
Proportion of women	111.10***	2.42***	.324
Proportion of whites	5.49**	1.44**	.323
Age	0.60	1.45***	.223
Income	12.76***	1.61***	.348
Prestige	0.85	1.43**	.322

** $p < .01$
*** $p < .0001$

Table 3

Mean values of dependent variables for each independent variable

Independent Variable	Level of independent variable	Mean value of dependent variable				
		Ability	Luck	Effort	Task Difficulty	Percentage of women
Proportion of women	High	3.25	2.67	3.36	2.81	35.59
	Low	4.14	2.95	4.09	3.78	21.36
Proportion of whites	High	4.36	3.01	4.10	3.81	27.42
	Moderate	2.86	2.63	3.33	2.62	20.14
	Low	2.50	2.43	3.10	2.47	25.98
Age	High	3.59	2.73	3.53	3.23	25.89
	Low	3.99	2.91	3.96	3.48	26.86
Income	High	4.43	2.94	4.16	3.97	29.94
	Moderate	3.65	2.92	3.66	3.13	23.55
	Low	2.44	2.34	3.13	2.50	25.00
Prestige	High	4.52	2.94	4.22	4.09	26.15
	Moderate	4.20	3.08	3.97	3.54	28.69
	Low	2.59	2.48	3.15	2.50	24.52